**REMARKS/ARGUMENTS**

Subsequent to the Office Action dated 11/29/05, claims 7-27 are allowed and claims 1-6 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt in view of Fattic et al. Applicants appreciate the allowance of claims 7-27. Applicants respectfully traverse the remaining rejections of claims 1-6.

Basically, the present invention utilizes accelerations and torques of preselected transmission members in an open loop control of a transmission member speed. The invention may also employ a closed loop control effort responsive to at least one preselected transmission speed error.

Broadly, and consistent with claim 1, the invention is practiced in a speed control in conjunction with an electrically variable transmission utilizing an open loop motor torque controller operative to control a preselected transmission speed to a target speed as a predetermined function of preselected transmission torques and accelerations. Thus, in accordance with more particular implementations, and consistent with claims 3 and 4 for example, the preselected transmission member torques include input member and output member torques, and the preselected transmission accelerations include input member acceleration and output member accelerations. The invention may include a closed loop effort consistent with claim 2 operative to act upon a predetermined transmission speed error.

In rejecting independent claim 1, the Office Action alleges that Fattic et al disclose an open loop motor torque controller operative to control a preselected transmission speed to a target speed as a predetermined function of preselected transmission torques and accelerations. The preceding underlined portion is a verbatim recitation of claim 1 language. The Office Action specifically cites column 6, lines 51-58 of Fattic et al. in support of this assertion. Column 6, lines 51-58 are set forth herein immediately below.

> With reference now to the LAUNCH MODE routine as detailed in the flow diagram of FIG. 3, block 301 represents the execution of program instructions for calculating the speed differential ΔN between the rotor speed Nr and the transmission input member speed Ni. ΔN will be utilized later in the routine to determine which one of an open loop torque

control or closed loop speed control techniques will be implemented.

Fattic et al. relates to regenerative vehicle launch. A vehicle in accordance with Fattic et al. includes a conventional multi-speed transmission, an engine, a motor/generator and a planetary gearset through which the engine, transmission and motor/generator are coupled. Fattic et al. teaches operating the motor/generator to apply a reaction torque to the planetary gearset during vehicle launches whereby the transmission is provided with an input torque and the reaction torque energy of the motor/generator is converted to electrical energy for charging a vehicle battery. Overall, Fattic et al. teaches a regenerative vehicle launch and convergence the motor/generator speed and transmission input member speed so that the members may be mechanically coupled via a clutch ($C_{R)}$. Fattic et al. particularly teaches, as pointed out by the Office Action citation at column 6, lines 51-58, utilizing a speed differential between two separate rotating members - the motor/generator rotor (Nr) and the transmission input member (Ni) - to choose between use of an open loop torque control or a closed loop speed control of the motor/generator in effecting the convergence. Essentially, when speed differential is small enough, closed loop speed control of the motor/generator is used whereas when speed differential is large in comparison, open loop torque control of the motor/generator is used. In any case, Fattic et al. merely discloses use of speed quantities in determining which one of an open loop or a closed loop control will be used.

Nowhere does either Schmidt or Fattic et al. teach or suggest the present invention as set forth in independent claim 1. Claim 1 recites the limitation "an open loop motor torque controller operative to control a preselected transmission speed to a target speed as a predetermined function of preselected transmission torques and accelerations." The cited portion of Fattic (i.e. column 6, lines 51-58) set forth above does not meet this limitation. In particular, lacking from this passage and lacking from the entire Fattic et al. reference are claim 1 recitations respecting the controller operative to control *"as a predetermined function of preselected transmission torques and accelerations."* Fattic does not teach any motor control – open loop or

closed loop – as a predetermined function of preselected transmission torques and accelerations as required by the recitations in claim 1 of the present invention. What Fattic et al. discloses is selection of either a closed loop or an open loop control for motor torque control based on transmission input member speed Ni and electric machine rotor speed Nr as embodied in the difference ΔN therebetween (see e.g. col. 6, ll. 55-57, *ΔN will be utilized later in the routine to determine which one of an open loop torque control or closed loop speed control techniques will be implemented.*). Additionally, when the open loop motor torque control of Fattic et al. is itself examined, it is clear that the open loop motor torque control is itself merely a function of transmission input member speed Ni and engine speed Ne, to wit:

> Beginning first with the open loop torque control technique of blocks 325-329, release of both clutches is indicated by setting the respective duty cycle commands $C_E$DC and $C_R$ DC to 0% at block 325. Block 327 next represents a resetting of the clutch apply timer CTMR to refresh the timer upon any initial invocation, and consequent release of the clutches, of the open loop torque control. Next, block 329 represents instructions executed in the determination of a torque command Tq for the motor. Preferably, as illustrated, these steps carry out a table look-up of torque values in accordance with a predetermined set of independent variables. In the present exemplary embodiment, it is preferred to reference a two-dimensional table by the combination of engine speed Ne and transmission input member speed Ni. (Fattic et al., col. 7, ll. 19-32) (see also FIG. 3, block 329)

Furthermore, the closed loop motor torque control of Fattic et al. is similarly reliant solely on transmission input member speed Ni and electric machine rotor speed Nr as embodied in the difference ΔN therebetween, to wit:

> Block 337 is executed from one of block 335 or 331 to effectuate the speed control desired. Block 337 represent steps to develop the torque signal Tq intended to converge the rotor speed Nr and transmission input member speed Ni. This is accomplished by conventional proportional/integral/derivative control tracking a single reference. In this case, the speed error ΔN is used to control the rotor speed Nr to the transmission input member speed Ni. (Fattic et al., col. 9, ll. 15-22) (see also FIG. 3, block 337)

It is clear that *Fattic et al. does not disclose, teach or suggest the use of transmission torques and accelerations in a motor torque control. Rather, only*

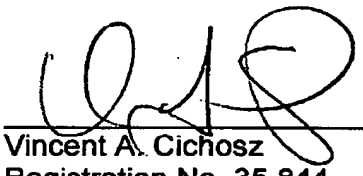
*speeds are utilized*. That being the case, Fattic et al. fail to provide adequate basis for the rejection of independent claim 1 which specifically recites "an open loop motor torque controller operative to control a preselected transmission speed to a target speed *as a predetermined function of preselected transmission torques and accelerations*." The remaining claims 2-6 which stand rejected are all dependent - immediately or through intervening dependent claims – from claim 1 and add additional limitations thereto. As such, and for the reasons recited above with respect to claim 1, Fattic et al. fail to provide adequate basis for the rejection thereof.

Therefore, Applicants respectfully request withdrawal of all outstanding rejections of claims 1-6. It is respectfully submitted that all pending claims 1-27 are in condition for allowance and requested that same be allowed to proceed to issue.

If the Examiner has any questions regarding the contents of the present response he may contact Applicants' attorney at the phone number appearing below.

Any fees associated with this response may be charged to General Motors Deposit Account No. 07-0960.

Respectfully submitted,



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